TECHNICAL REPORT

ISO/IEC TR 29138-3

First edition
2009-06-15

Information technology — Accessibility considerations for people with disabilities —

Part 3: Guidance on user needs mapping

Technologies de l'information — Considérations d'accessibilité pour les personnes infirmes —

Partie 3: Guidage sur le mappage des besoins de l'usager

Reference number
ISO/IEC TR 29138-3:2009(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 29138-3, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ISO/IEC TR 29138 consists of the following parts, under the general title *Information technology — Accessibility considerations for people with disabilities*:

— *Part 1: User needs summary*

— *Part 2: Standards inventory*

— *Part 3: Guidance on user needs mapping*

Introduction

The user needs summary can be mapped to existing and developing standards to identify which user needs the standard provides guidance for meeting. Mappings can help standards developers to consider the potential for addressing particular needs in their standards. Mappings can be included as informative annexes within standards to help developers to find guidance addressing particular user needs within the standard. Compilations of mappings can help developers to identify standards containing guidance addressing particular user needs.

Some standards cover limited domains and in such cases some user needs will not apply. For example, visual accessibility needs are generally not relevant to standards addressing the ability to exert force. Standardization organizations can selectively use the user needs summary for their own purposes.

JTC1 encourages standardization organizations to utilize the user needs summary in a variety of ways, including developing and improving the coverage of accessibility issues in their ICT standards. JTC1 SWG-A would appreciate feedback from standardization organizations on how they have used the user needs summary, their findings in general and new work initiated as a result.

Information technology — Accessibility considerations for people with disabilities —

Part 3: Guidance on user needs mapping

1 Scope

This part of ISO/IEC TR 29136 provides guidance on the mapping of the set of user needs with the provisions of a particular standard, technical report, or set of guidelines. It provides both basic guidance that should be used for all user needs mapping and optional guidance that may be added to the basic guidance.

User needs mapping is a voluntary activity intended to help improve accessibility for all users and in particular for users with special needs that might otherwise be overlooked. User needs mapping is not intended to be used to evaluate, certify, or otherwise judge a given standard or set of guidelines.

2 Benefits of user needs mapping

User needs mapping benefits standards developers and developers of style guides by:

— alerting them to the range of accessibility-related user needs,

— helping them to identify the accessibility-related user needs that their standards deal with,

— helping them to identify standards materials that address particular needs, where mappings exist for these other standards,

— helping them to identify where additional guidance might be added to their standards to deal with further accessibility-related user needs.

User needs mapping benefits end users by encouraging that their needs will be considered by standards (and similar documents) and the developers products and services who apply these standards (and similar documents).

User needs mappings to standards can also benefit policy makers and accessibility advocates by helping them to identify standards materials that address particular needs.

User needs mapping benefits ISO/IEC JTC1 by providing information on the accessibility related provisions of different standards. This information can be used:

— to provide information on the set of existing standards that deal with various accessibility concerns,

— to identify the potential for new standards to deal with additional accessibility concerns.

3 Normative references

ISO/IEC TR 29138-1, *Information technology — Accessibility considerations for people with disabilities — User needs summary*

4 On-line references

The latest version of the user needs summary and the user needs mapping template can be obtained from the ISO/IEC JTC1 / SWG-A website at http://www.jtc1access.org/base.htm

5 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

5.1
guidance
requirement or recommendation within a standard or other document that is being mapped to the set of user needs

5.2
guideline
provision
identifiable portion of a standard or other document that contains some specific guidance

5.3
recommendation
expression in the content of a document conveying that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited

[ISO/IEC Directives, Part 2, 2004, Definition 3.12.2]

5.4
requirement
expression in the content of a document conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted

[ISO/IEC Directives, Part 2, 2004, Definition 3.12.1]

5.5
standard
identifiable document that contains some specific guidance

NOTE In the context of this part of ISO/IEC TR 29138, standards include: all ISO and ISO/IEC standards, technical reports, publicly available specifications and all documents of other organizations that have a similar function to these ISO and ISO/IEC documents.

5.6
specific user need
individual entry from the user needs summary

6 User needs mapping overview

6.1 Persons performing user needs mapping

While user needs mapping can be performed by anyone, it is preferable that it be performed by someone with considerable expertise in the standard being mapped.

6.2 Steps in performing user needs mapping

User needs mapping involves three steps:

a) Mapping individual requirements and recommendations.

b) Cross-referencing the mapping (optional).

c) Reporting the mapping results.

6.3 Contents of a user needs mapping

User needs mapping should be recorded using spreadsheet containing a user needs mapping template that is based on the latest version of the user needs summary.

NOTE The use of spreadsheet makes the various steps of user needs mapping easier to do and makes the results easier to combine with other user needs mappings.

7 Structure and contents of a user needs mapping template

Annex B contains a copy of the user needs mapping template that was current on 2008-07-03.

The latest version of the user needs mapping template can be obtained from the ISO/IEC JTC1 / SWG-A Website at http://www.jtc1access.org/base.htm

The user needs mapping template contains a row of headings followed by multiple rows documenting:

— User needs categories,

NOTE Categories are primarily used as headings to organize groups of user needs.

— Specific user needs.

NOTE Mapping is primarily done on specific user needs (as discussed in the following clauses).

The following columns are used for all user needs mappings:

a) Column A: Standard

— All cells in this column contain the name of the standard being mapped.

NOTE This supports the combination of multiple user needs mappings.

b) Column B: Category

— Cells in this column contain the category number from the “Category” column in the user needs summary.

NOTE This supports sorting the user needs mappings.

c) Column C: Need id

— Cells in this column contain:

— for rows containing user needs categories: the value “0”,

— for rows containing specific user needs: the need id number from the “User Needs” column in the user needs summary.

NOTE This supports sorting the user needs mappings.

d) Column D: User needs (SOME NEED…)

— Cells in this column contain:

— for rows acting as user needs categories: the category description from the user needs summary,

— for rows containing specific user needs: the descriptions of user needs (from the user needs summary) for rows identifying specific user needs.

e) Column E: Maps to (location in standard)

— Cells in this column contain:

— for rows acting as user needs categories: this value can be left blank,

NOTE The procedures for mapping (discussed below) suggest optional uses for these cells.

— for rows containing specific user needs: an identifier of locations in the standard that provide guidance intended to meet that need (e.g. 6.3.2).

— If the guidance that maps is within a paragraph or set of paragraphs, the contents of column E can explicitly identify the location of the guidance (e.g. 6.3.2 Paragraph 2 Sentence 3).

— If the guidance that maps is within a note or example, the contents of column E can explicitly identify the note or example (e.g. 6.3.2 Note 2).

Columns F – H contain additional optional columns that can be left blank. Information regarding these additional optional columns (which are available for use in the user needs mapping template) is provided in Annex A.1.

8 Mapping individual requirements and recommendations

The user needs mapping of each standard starts with a fresh copy of the user needs mapping template.

Mapping identifies guidelines in a standard that relate to a specific user need.

NOTE User needs categories are not normally mapped.

Mapping can be performed by dealing with each specific user need, one need at a time, in the order that user needs occur in the user needs mapping template.

— For each specific user need, identify all guidelines in the standard that address the specific user need.

— Record the location of each identified guideline in the user needs mapping, (as discussed in Clause 6 for Column E: Maps to (location in standard)),

- (Optionally) you can also record the level of the mapping of the guidance (as discussed in Annex A for Column F: Mapping level),
- (Optionally) you can also record the guidance or a summary of the guidance (as discussed in Annex A for Column G: Guidance in standard).

- (Optionally) if multiple guidelines are intended to be used together to meet a single Specific User Need this can be indicated in Column H (as discussed in Annex A for Column H: Comments).
- (Optionally) other types of comments can also be placed in Column H: Comments (as discussed in Annex A for Column H: Comments).
- (Optionally) if no guidelines were identified in this mapping, it is recommended that you record the lack of any guideline (as discussed in Annex A for Column F: Mapping level).

9 Cross-referencing the mapping (optional)

9.1 The role of cross-referencing

A user needs mapping cross-reference is a special case of a user needs mapping that is sorted based on locations within a standard rather than sorted based on the user needs categories and need Id's.

User needs mapping will provide a good picture of which user needs the standard addresses. However, it can be useful to cross check the mapping and to be able to point users of the standard from guideline to the Specific User Needs that they support.

This clause provides guidance on how cross-referencing can be performed and used.

9.2 Preparing a mapping for creating a cross-reference

Cross-referencing involves a maximum of 1 mapping per row in the spreadsheet. If there are multiple guidelines that map to a particular detailed user need, use separate rows for each mapping by:

a) Inserting sufficient new rows below the row containing specific user need with multiple mappings to accommodate the additional mappings (1 new row per additional mapping),

b) Copying the contents of Columns A-D for the specific user need into each of the new rows,

c) Separating the addresses of the guidelines (contained in column E) among these rows so that there is one address per row to map to the specific user need.

NOTE Separate rows can be used for separate mappings during the user needs mapping process, so that a user needs mapping cross-reference can be created directly without having to do this separation.

9.3 Creating a cross-reference

To create a user needs mapping cross-reference:

a) Create and save a copy of the completed user needs mapping under a different name that identifies it as a user needs mapping cross-reference.

b) Sort the data contained in the user needs mapping cross-reference for all rows except the headings in row1, based on Column E: Maps to (location in standard). This will provide a mapping that is sorted in the same order as the standard.

c) Record the results of cross-referencing in the cross-reference spreadsheet.

9.4 Checking the cross-reference

Many standards may include a number of guidelines that are not necessarily accessibility-related. However, a cross-reference can be used to help identify whether individual guidelines that are not already mapped, have any relation to accessibility.

Checking a cross-reference involves going through a standard one guideline at a time and seeing whether or not that guideline appears in the cross-reference.

For each guideline that does not appear in the cross-reference:

- If the guideline is accessibility-related, then
  - If a specific user need can be found that it maps to, it was missed in the mapping
    - revise the row to indicate this mapping in the same way used for the initial user needs mapping.
  - If there is not an existing specific user need is identified, it may involve a new type of specific user need. A method of optionally recording this new type of Specific User Need is contained in Annex A.2.

  NOTE It is requested that any potentially new user needs be reported to ISO/IEC JTC1 / SWG-A at the address found at http://www.jtc1access.org/contacts.htm for possible inclusion in new versions of the user needs summary.
- If the guideline is not accessibility-related, then it can be ignored.

9.5 Using the cross-reference in a standard

The contents from columns E, B, C, and D (in this order) can provide useful information to readers of a standard. Where desired standards developers can include this information (along with a reference to the user needs summary) as an informative annex to their standard.

10 Reporting the mapping results

10.1 Reporting results to standards developers

It is requested that persons developing a user needs mapping for a standard provide a copy of this mapping to the committee responsible for developing the standard. This can be done to

- get their agreement that the mapping is accurate,
- get input from them as to any copyright issues with information listed in Column G: Guidance in Standard,
- provide them information that they might wish to use during their standards development activities,
- provide them with information to use in an informative annex to cross reference their guidance to the user needs summary.

10.2 Reporting results to ISO/IEC SWG-A (optional)

It is requested that persons mapping a standard to the user needs summary provide a copy of this mapping to ISO/IEC JTC1 / SWG-A by e-mailing it to the Secretariat of ISO/IEC JTC1 / SWG-A at the address found at http://www.jtc1access.org/contacts.htm, with the accompanying information discussed below:

- Contact information for the person who developed the mapping;
- Identification of the activities conducted {User Needs Mapping, Cross-Referencing the Mapping};

— A statement of whether or not any information contained in Column G: Guidance in Standard needs to be restricted in its distribution due to copyright issues;

— A statement of whether or not the mapping has been approved by the committee responsible for the development of the standard.

10.3 Reporting results to the general public

Developers of user needs mappings are free (as individuals or as organizations) to report their results to the public in whatever manner they choose (including as cross-references associated with the standards) as long as they:

— Respect any copyrights of the owners of the standard,

— Do not state or imply that the mapping was approved by ISO/IEC JTC1 / SWG-A.

11 Combining the results of multiple mappings

The structure of a user needs mapping (as described in Clause 7) readily supports the combining of multiple user needs mappings as long as each of the mappings follows this structure.

Annex A
(informative)

Optional enhancements

A.1 Optional columns in the user needs mapping template

The following (optional) columns provided in the user needs mapping template can be used to record additional helpful information within user needs mappings:

a) Column F: Mapping level

- It is recognized that there may be differences in the level of generalization or specificity of guidance and the user needs to which they map.
- It is recommended that the following keywords be placed as the contents of column E
  - The keyword “MAPS” denotes a direct mapping, where the guidance is approximately at the same level as the stated user need.
  - The keyword "MORE" denotes a related mapping, where the guidance is more detailed than the stated user need and/or that it may only meet part of the need.
  - The keyword "LESS" denotes a related mapping, where the guidance is more general than the stated user need and/or that users of the guidance may not necessarily recognize the particulars of the need from the guidance.
  - The keyword "NONE" denotes a lack of any mapping. It can be added, after attempting to find mappings, to indicated that no mapping has been found.
- Additional keyword to denote a need that is outside the scope of a standard.
  - The keyword "N/A" can be used instead of "NONE" to denote that the specific user need is explicitly outside the scope of the standard. This symbol is for very limited use and is most appropriate for use in situations where this exclusion is supported by the wording of the scope of the standard and where this wording is then noted or summarized in Column G.

b) Column G: Guidance in standard

- It is useful to be able to have an understanding of the guidance that is being mapped. However, publicly disseminated user needs summaries should not circumvent legitimate copyright interests in the standard being mapped.
- Even where copyright is involved, guidance from the standard could be used for private working drafts during the mapping exercise, and then removed prior to distributing copies of the mapping.
- For copies of the user needs summary that are distributed:
  - If copyright is not involved, the actual guidance can be placed in column C.
  - If copyright is involved, it is possible that a brief summary phrase (or an available heading) can describe the guidance without violating copyright.

c) Column H: Comments

— Additional comments can be placed in this column.

— Where multiple clauses need to be used together to meet a particular user need, a comment could contain the set of clause numbers that are used together fully meets the need.

— If you have comments about a specific user need in the user needs matrix, please include these comments here. Examples of comments include:

— When the wording of a need is not clear,

— If the need is more specific than the level of typical guidance.

A.2 Optionally recording new types of specific user need

If a new type of specific user need has been identified, this identification is made known in a new entry in the user needs mapping cross-reference in Section 99 “Newly identified user needs (if any)” that has the following entries:

— the name of the standard the same as other entries in Column A: Standard

— “99” to indicate that this is a guideline that does not map to currently identified user needs in Column B: Category

— sequentially allocated numbers starting at 1 (to identify this as involving a detailed need as opposed to a category) in Column C: Need id

— a suggested wording of the user need you have identified in Column D: User Needs (SOME NEED…)

— the identification of the location of the guideline within the standard in Column E: Maps to (Location in Standard)

— (optionally) the level of mapping in Column F: Mapping

— (not optional in this situation) the guidance that has identified a potential new user need in Column G: Guidance in standard

— "Newly Identified User Need" followed by any suggested references to materials dealing with this need in Column H: Comments.

It is requested that any potentially new user needs be reported to ISO/IEC JTC1 / SWG-A at the address found at http://www.jtc1access.org/contacts.htm for possible inclusion in new versions of the user needs summary.

Annex B
(informative)

Sample user needs mapping template

This Annex contains a copy of the user needs mapping template that was current on 2008-07-03.

The latest version of the user needs summary and the user needs mapping template can be obtained from the ISO/IOC JTC1 / SWG-A Website at http://www.jtc1access.org/base.htm

Standard	User Need Category	User Need id	User Need (from ISO/IEC 29138-1:2008)	Maps to	Mapping level (optional)	Guidance in Standard (optional)	Comments (optional)
	1		**Perceive visual information**				
	1	1	visual information also available in auditory form				
	1	2	visual information also available in tactile form				
	1	3	sufficient brightness for visually presented information (luminance for displays — illumination for printed)				
	1	4	any information (other than the colour itself) that is presented through colour to be also presented in another way that does not rely on colour.				
	1	5	to change the colours of information				
	1	6	text readable with reduced visual acuity				
	1	7	information within viewable range of those of short stature or seated in wheelchairs				
	1	8	to avoid reflective glare				
	1	9	to avoid glare from excessive brightness (of material or surrounding)				
	1	10	to pause, and re-play information presented using audio, video or animation.				
	1	11	to perceive foreground visual information in the presence of background				
	1	12	to see and hear text simultaneously				
	2		**Perceive auditory information**				
	2	1	auditory information also available in visual form				
	2	2	auditory information also available in tactile form				
	2	3	to adjust the volume to a suitable level				
	2	4	auditory events, alerts etc, be multi-frequency				

	2	5	when vibration is used as a substitute for different auditory events, then some need vibration to have different vibration patterns				
	2	6	multi-channel auditory information available in monaural form				
	2	7	to pause, and re-play audio information				
	2	8	to perceive foreground audio information in the presence of background				
	2	9	to adjust the audio characteristics (e.g. pitch, balance)				
	3		**Perceive existence and location of actionable components**				
	3	1	to locate and identify all keys and controls via non-visual means without activating them				
	3	2	to have non-actionable elements (logos, decorative details) not look or feel like buttons or controls				
	3	3	sufficient landmarks and cues to be able to quickly re-find all keys and controls during use				
	3	4	controls that visually contrast with their surroundings				
	3	5	controls to be in places where they can be easily found with low vision and with no sight				
	3	6	controls within viewable range of people of short stature or seated in wheelchairs				
	3	7	focus and pointing indicators that are visible with low vision				
	3	8	information describing the layout of the operational parts				
	3	9	location and layout of controls to be consistent				
	4		**Perceive status of controls and indicators**				
	4	1	a non-visual equivalent to any visual indicators or operational cues, designed (power light) or intrinsic (e.g. visual movements)				

	4	2	a non-audio indicator for any auditory indicators or operational cues, designed (e.g. beeps, lights) or intrinsic (e.g. machine sounds, visual movements)				
	4	3	a non-tactile alternative to any subtle tactile feedback				
	4	4	alternatives that are different, when different signals are used (e.g. different ring tones, or tactile or visual indicators)				
	4	5	visual indicators (e.g. LEDs, on screen indicators, mouse cursors) that are visible with low vision				
	4	6	controls and indicators that are perceivable without relying on colour				
	4	7	sufficient quality (e.g. volume, direction, clarity, frequency) for audio cues				
	4	8	tactile indicators (i.e. for those who need indicator to be both non-visual and non-auditory)				
	4	9	information within viewable range of those of short stature or seated in wheelchairs				
	5		**Perceive feedback from an operation**				
	5	1	feedback to be audio or tactile (i.e. non-visual)				
	5	2	feedback to be tactile (i.e. both non-visual and non-auditory)				
	5	3	a visual or auditory alternative to any subtle tactile feedback				
	5	4	alternatives that are different, when different signals are used (e.g. different ring tones, or tactile or visual indicators)				
	5	5	visual feedback that is obvious with low vision				
	5	6	feedback that is perceivable without relying on colour				
	5	7	to adjust the colours to make things easier to read				

	5	8	sufficient quality (e.g. volume, direction, clarity, frequency) for audio feedback				
	5	9	audio feedback that does not require tone differentiation				
	5	10	visual or tactile feedback to occur at the same location as the control				
	5	11	clear feedback of connector engagement (e.g. power cord, PC card, USB connector, etc.)				
	5	12	feedback to be predictable				
	6		**Be able to invoke and carry out all actions including maintenance and setup**				
	6	1	to operate all functionality using only tactilely discernable controls coupled with non-visual feedback				
	6	2	to access all functionality without having to use touch or very light touch activated controls				
	6	3	to fully operate the product without requiring a pointing device				
	6	4	to access all computer software functionality from the keyboard (or keyboard emulator) with only visual feedback				
	6	5	an alternative method to operate any speech controlled functions				
	6	6	a method to fully operate the product that does not require simultaneous actions				
	6	7	a method to fully operate the product that does not require much force				
	6	8	a method to fully operate the product that does not require much continuous force				
	6	9	a method to fully operate the product that does not require much stamina (includes sustained or repeated activity without sufficient rest)				
	6	10	a method to fully operate the product that does not require much reach (weakness,, stature or wheelchair)				

	6	11	a method to fully operate the product that does not require tight grasping				
	6	12	a method to fully operate the product that does not require pinching				
	6	13	a method to fully operate the product that does not require twisting of the wrist				
	6	14	a method to fully operate the product that does not require direct body contact				
	6	15	a method to fully operate the product that does not require much accuracy of movement				
	6	16	to adjust the speed and acceleration of input devices				
	6	17	to operate the product with only a left or only a right hand				
	6	18	to operate the product without use of hands				
	6	19	to operate the product using only speech				
	6	20	alternatives to biometric means of identification				
	6	21	alternative modalities to text input				
	6	22	to have similar patterns of activation for similar actions				
	6	23	visual indication of keyboard shortcuts				
	7		**Be able to complete actions and tasks within the time allowed**				
	7	1	much more time to read displayed information				
	7	2	much more time to complete actions - and no feeling of time pressure				
	7	3	information necessary to plan their actions in advance				
	7	4	the ability to avoid visual or auditory distractions that prevent focusing on a task				
	8		**Won't accidentally activate actions**				
	8	1	products and controls designed so they can be explored without activation, either tactilely or through keyboard navigation				

	8	2	to operate controls with tremor or spasmodic movements without inadvertent entries				
	8	3	controls that are not activated by a slight touch or when they receive keyboard focus				
	9		**Be able to recover from errors**				
	9	1	notification when the product detects errors made by the user				
	9	2	unambiguous guidance on what to do in the event of a reported error				
	9	3	a means (e.g. a mechanism) to go back and undo the last thing(s) they did				
	9	4	to reset (to initial condition)				
	10		**Have equivalent security and privacy**				
	10	1	private listening capability, when using audio alternatives to visual information in public places				
	10	2	protection of the privacy of their information, even if they are not able to do the “expected” things to protect it themselves				
	10	3	security of their information, even if they are not able to do the “expected” things to protect it themselves				
	11		**Not cause personal risk**				
	11	1	products where hazards are obvious, easy to avoid, and difficult to trigger				
	11	2	products that do not rely on specific senses or fine movement to avoid injury				
	11	3	to use products safely without seeing hazards or warnings				
	11	4	to use products safely without hearing hazard warnings				
	11	5	to avoid visual patterns that causes them to have seizures				

	11	6	to avoid auditory patterns that causes them to have seizures				
	11	7	products that do not give off electromagnetic radiation				
	11	8	products that do not give off chemicals that they are allergic to				
	12		**Be able to efficiently operate product**				
	12	1	alternate modes of operation that are effective given the time constraints of the task				
	12	2	keyboard navigation that follows a meaningful sequence through form controls				
	12	3	to increase the rate of audio alternatives (unless there are minimal audio alternatives)				
	12	4	system level accessibility preference settings that apply across applications				
	12	5	to have applications not override or defeat built-in accessibility features				
	12	6	accessibility preference settings preserved unless explicitly changed				
	12	7	preference settings to change immediately preferably without requiring system reboot				
	12	8	to save and restore individual preference settings				
	12	9	accessibility functions that can be returned to an initial state individually or together after each user				
	12	10	hardcopy documents to be usable with one hand or mouthstick				
	12	11	structure when navigating long audio material				
	12	12	consistent and predictable user interfaces				
	13		**Understand how to use product (including discovery and activation of any access features needed)**				
	13	1	to get overview and orient themselves to product and functions/parts without relying on visual presentation or markings on product				

	13	2	wording, symbols, and indicators used on products that are as easy to understand as possible given the device and task				
	13	3	products or services to use standard conventions, words and symbols for their culture (cross-cultural if possible)				
	13	4	clear and easy activation mechanisms for any access features				
	13	5	navigation that supports different thinking styles				
	13	6	to understand product if they have difficulty thinking hierarchically				
	13	7	any text read aloud to them				
	13	8	steps for operations that are minimized and clearly described				
	13	9	interfaces that limit the memorization required of the user to operate them successfully				
	13	10	cues to assist them in multi-step operations				
	13	11	simple interfaces that only require them to deal with the controls they need (advanced or optional controls removed in some fashion)				
	13	12	each function on its own key rather than having keys change their functions but look/feel the same				
	13	13	to know that a product is usable by them and how to set it up to work for them				
	13	14	information presented in an alternative to text based representation				
	14		**Understanding the output or displayed material (even after they perceive it accurately)**				
	14	1	textual material to be worded as clearly and simply as possible				
	14	2	text, illustrations and diagrams in spoken form				